

WHAT IS CLAIMED IS:

1. A jet fuel, the jet fuel comprising a base fuel and an additive for increasing a smoke point of the jet fuel, the additive comprising:

- a plant oil extract;
- an antioxidant; and
- a thermal stabilizer.

2. The jet fuel of claim 1, wherein the plant oil extract comprises an oil extract of a plant of the *Leguminosae* family.

3. The jet fuel of claim 1, wherein the plant oil extract is selected from the group consisting of oil extract of vetch and oil extract of barley.

4. The jet fuel of claim 1, wherein the plant oil extract comprises chlorophyll.

5. The jet fuel of claim 1, wherein the antioxidant comprises β -carotene.

6. The jet fuel of claim 1, wherein the thermal stabilizer comprises jojoba oil.

7. The jet fuel of claim 1, wherein the thermal stabilizer comprises an ester of a C20-C22 straight chain monounsaturated carboxylic acid.

8. The jet fuel of claim 1, further comprising an oxygenate.

9. The jet fuel of claim 8, wherein the oxygenate is selected from the group consisting of methanol, ethanol, methyl tertiary butyl ether, ethyl tertiary butyl ether, and tertiary amyl methyl ether, and mixtures thereof.

10. The jet fuel of claim 1, further comprising a diluent.

11. The jet fuel of claim 10, wherein the diluent comprises toluene, gasoline, diesel fuel, jet fuel, and mixtures thereof.

12. The jet fuel of claim 1, further comprising at least one additional additive selected from the group consisting of detergents, corrosion inhibitors, metal deactivators, ignition accelerators, dispersants, anti-knock additives, anti-run-on additives, anti-pre-ignition additives, anti-misfire additives, antiwear additives, antioxidants, demulsifiers, carrier fluids, solvents, fuel economy additives, emission reduction additives, lubricity improvers, thermal stability improvers, and mixtures thereof.

13. The jet fuel of claim 1, wherein the plant oil extract comprises oil extract of vetch, wherein the antioxidant comprises β -carotene, and wherein the thermal stabilizer comprises jojoba oil.

5 14. The jet fuel of claim 13, wherein a ratio of grams of plant oil extract of vetch to grams of β -carotene in the jet fuel is from about 50:1 to about 1:0.05, wherein a ratio of grams of oil extract of vetch to milliliters jojoba oil in the jet fuel is from about 12:1 to about 1:0.05, and wherein a ratio of milliliters jojoba oil to grams of β -carotene in the jet fuel is from about 12:1 to about 1:0.5.

10 15. The jet fuel of claim 13, wherein a ratio of grams of plant oil extract of vetch to grams of β -carotene in the jet fuel is from about 24:1 to about 1:0.1, wherein a ratio of grams of oil extract of vetch to milliliters jojoba oil in the jet fuel is from about 6:1 to about 1:0.1, and wherein a ratio of milliliters jojoba oil to grams of β -carotene in the jet fuel is from about 6:1 to about 1:1.

15 16. The jet fuel of claim 13, comprising from about 0.0013 g to about 0.023 g oil extract of vetch per 3785 ml jet fuel, from about 0.00053 g to about 0.021 g β -carotene per 3785 ml jet fuel, and from about 0.0018 ml to about 0.022 ml jojoba oil per 3785 ml jet fuel.

17. A jet fuel, the jet fuel comprising a base fuel and an additive for increasing smoke point of the jet fuel, the additive comprising β -carotene.

20 18. The jet fuel of claim 17, further comprising at least one additional additive selected from the group consisting of detergents, corrosion inhibitors, metal deactivators, ignition accelerators, dispersants, anti-knock additives, anti-run-on additives, anti-pre-ignition additives, anti-misfire additives, antiwear additives, antioxidants, demulsifiers, carrier fluids, solvents, fuel economy additives, emission reduction additives, lubricity improvers, thermal stability improvers, and mixtures thereof.

19. The jet fuel of Claim 17, further comprising a plant oil extract.

20. The jet fuel of Claim 17, further comprising a thermal stabilizer.

25 21. The jet fuel of Claim 17, further comprising a plant oil extract and a
30 thermal stabilizer.

22. The jet fuel of claim 19, wherein the plant oil extract comprises an oil extract of a plant of the *Leguminosae* family.

23. The jet fuel of claim 19, wherein the plant oil extract is selected from the group consisting of oil extract of vetch and oil extract of barley.

5 24. The jet fuel of claim 19, wherein the plant oil extract comprises chlorophyll.

25. The jet fuel of claim 19, wherein the thermal stabilizer comprises jojoba oil.

10 26. The jet fuel of claim 19, wherein the thermal stabilizer comprises an ester of a C20-C22 straight chain monounsaturated carboxylic acid.

27. The jet fuel of claim 21, wherein the plant oil extract comprises oil extract of vetch and the thermal stabilizer comprises jojoba oil.

28. The jet fuel of claim 17, comprising from about 0.0010 g to about 0.01 g of β -carotene per 3785 ml of jet fuel.

15 29. The jet fuel of claim 17, comprising from about 0.0021 g to about 0.0063 g of β -carotene per 3785 ml of jet fuel.

30. A jet fuel additive for reducing a pollutant emission, the additive comprising:

20 a plant oil extract;
an antioxidant; and
a thermal stabilizer.

31. The jet fuel additive of claim 30, wherein the plant oil extract comprises an oil extract of a plant of the *Leguminosae* family.

25 32. The jet fuel additive of claim 30, wherein the plant oil extract is selected from the group consisting of oil extract of vetch and oil extract of barley.

33. The jet fuel additive of claim 30, wherein the plant oil extract comprises chlorophyll.

34. The jet fuel additive of claim 30, wherein the antioxidant comprises β -carotene.

30 35. The jet fuel additive of claim 30, wherein the thermal stabilizer comprises jojoba oil.

36. The jet fuel additive of claim 30, wherein the thermal stabilizer comprises an ester of a C20-C22 straight chain monounsaturated carboxylic acid.

37. The jet fuel additive of claim 30, wherein the plant oil extract comprises oil extract of vetch, wherein the antioxidant comprises β -carotene, and wherein the thermal stabilizer comprises jojoba oil.

38. The jet fuel additive of claim 30, further comprising a diluent.

39. The jet fuel additive of claim 38, wherein the diluent is selected from the group consisting of toluene, gasoline, diesel fuel, jet fuel, and mixtures thereof.

40. The jet fuel additive of claim 37, wherein a ratio of grams of plant oil extract of vetch to grams of β -carotene in the additive is from about 50:1 to about 1:0.05, wherein a ratio of grams of oil extract of vetch to milliliters jojoba oil in the additive is from about 12:1 to about 1:0.05, and wherein a ratio of milliliters jojoba oil to grams of β -carotene in the additive is from about 12:1 to about 1:0.5.

41. The jet fuel additive of claim 37, wherein a ratio of grams of plant oil extract of vetch to grams of β -carotene in the additive is from about 24:1 to about 1:0.1, wherein a ratio of grams of oil extract of vetch to milliliters jojoba oil in the additive is from about 6:1 to about 1:0.1, and wherein a ratio of milliliters jojoba oil to grams of β -carotene in the additive is from about 6:1 to about 1:1.

42. A method for operating a vehicle equipped with a jet engine, the method comprising the step of:

combusting a jet fuel in the engine whereby an exhaust is produced, the exhaust having a smoke point, wherein the jet fuel comprises a base fuel, an antioxidant, and a thermal stabilizer, and wherein the smoke point of the jet fuel is greater than a smoke point of the base fuel.

43. A method for operating a vehicle equipped with a jet engine, the method comprising the step of:

combusting a jet fuel in the engine, wherein the jet fuel has a smoke point, wherein the jet fuel comprises a base fuel and β -carotene, and wherein the smoke point of the jet fuel is greater than a smoke point of the base fuel.